

MIXING DEVICE FOR TWO-PHASE CONCURRENT VESSELS

ABSTRACT OF THE DISCLOSURE

In a vertical reactor vessel through which vapor and liquid flow concurrently, the
5 fluids pass vertically through a horizontal mixing box having internal flow baffles that
form at least one mixing orifice through which the process stream flows at high
velocity. In the mixing orifices the liquid is dispersed to obtain a large area for inter-
phase heat and mass transfer. Each mixing orifice is followed by structure that
divides the process stream into two lower velocity streams, whereby turbulent flow
10 conditions are generated, and wherein hold-up time is provided to allow for heat and
mass transfer. The fluids exit the mixing box through an outlet opening in a bottom
wall of the mixing box. An impingement plate is located below this outlet opening to
spread the liquid and decrease the velocity of the exiting jet. The outlet stream from
the mixer is equilibrated regarding temperature and chemical composition.